Options for Management Plan Goals

Prepared for the Groundwater Advisory Council by John Jansen to foster discussion

I. Low threshold targets

Major elements:

Control head in sandstone aquifer at some level close to current conditions

No other management goals for shallow aquifer or surface water

Pros:

Minimal disruption of existing water users

Does not affect other water source options

Conservation measures would be required and implemented

Cons:

Fails to include management of the shallow system or any cooperation in the management of the deep system.

Likely to create strong incentive for expanded use of the shallow system

May impact surface water bodies even if minimum setbacks are met, including features protected by act 310

Assumes continued significant use of the sandstone aquifer with its associated radium and other water quality treatment issues and costs

II. Intermediate threshold targets

Major elements:

Restore head in sandstone aquifer to above the 150 foot drawdown standard used to define GMAs in act 310

No other management goals for shallow aquifers or surface water, or could elect to establish non-degradation standards only for Act 310 surface water features

Pros:

May help limit further degradation of the sandstone aquifer (i.e. increased drawdown, diminished well yields, poor water quality)

May allow region to be removed from Groundwater Management Area status

May allow for some degree of management of the shallow system

Does not affect other water source options

Concurrent regional cooperation, conservation and best management practices would limit demand and ensure optimization of the system

May maintain sustainability of resource

Cons:

Significant disruption of existing water users

Likely to create strong incentive for expanded use of the shallow system

The 150 ft drawdown target for the sandstone aquifer fails to take into account the adverse effects of pumping on surface water.

Likely to impact surface water bodies even if minimum setbacks are met, including features protected by act 310

III. Highest Threshold targets

Major elements:

Manage all aquifer concurrently to minimize ecological impact

Control head in sandstone aquifer at some level higher than current conditions

Establish management goals for shallow aquifers and surface water bodies by limiting drawdown in aquifers and lakes and limiting impacts to base flow to streams

Should include considerations to account for impacts of natural climate variation on shallow aquifers and surface water

Pros:

Will limit further degradation of the sandstone aquifer (i.e. increased drawdown, diminished well yields, poor water quality)

Provides maximum protection to aquifers and aquatic habitats

Ensures sustainability of the resource and thereby economic sustainability of area

Concurrent regional cooperation, conservation and best management practices would limit demand and ensure optimization of the system

Cons:

Maximum disruption of existing water users

Places significant restrictions on water source options

May create second set of environmental standards for portions of the state

Likely to create strong incentive for expanded use of the shallow system

Will require significant new infrastructure investments

Volume of "Practically available water" may be limited or insufficient for future needs

Likely to create monitoring burden, which could be lessened through use of a well calibrated groundwater flow model

Annex 2001 may be in conflict with some elements of least impact alternatives

[Note: Most of the Cons apply only to groundwater source options]